

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Patent Application of

MAYHEW et al.

Serial No. 10/509,888

Filed: October 1, 2004

For: A SUB-DUCTING APPARATUS

Conf. No.: 9785

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Examiner: S. Singh

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December 3, 2010

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Appellant hereby **appeals** to the Board of Patent Appeals and Interferences from
the last decision of the Examiner.

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(I) REAL PARTY IN INTEREST

The real party in interest is British Telecommunications, a corporation of the country of Great Britain.

(II) RELATED APPEALS AND INTERFERENCES

The appellant, the undersigned, and the assignee are not aware of any related appeals, interferences, or judicial proceedings (past or present), which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

(III) STATUS OF CLAIMS

Claims 2-14 and 17-20 are pending. Claims 2-5, 7, 14 and 17-20 have been rejected. Claims 6 and 8-13 have been withdrawn from consideration. No claims have been substantively allowed. Thus, claims 2-5, 7, 14 and 17-20 are on appeal herein, and claims 6 and 8-13 are withdrawn from consideration. Claims 1 and 15-16 have been cancelled.

(IV) STATUS OF AMENDMENTS

No amendments have been filed since the date of the Final Rejection.

(V) SUMMARY OF CLAIMED SUBJECT MATTER

A listing of the representative independent claims and each dependent claim argued separately is provided below including exemplary, but not limiting, reference(s) to reference numerals, Figure(s) and page and line number(s) of the specification.

The invention of the claims relates to a method and an apparatus for accessing and removing cables in a duct by inserting a sub-duct into the duct, wherein the sub-duct is sleeved over the cable to be removed, the sub-duct having a detachable head which is deformable to negotiate through the duct and untangle the cable to be removed (e.g., Figs. 1-6, p. 1, line 20 to p. 2, line 7, p. 3, lines 10-14, 19-20, p. 4, lines 3-28, p. 7, lines 7-24).

Claim 19 relates to a sub-ducting apparatus 10 for removing from a duct 1 a cable 4 which is jammed within the duct 1 by an obstruction, comprising

a sub-duct 12 and a remotely operable path-finding element comprising easing means and/or cutting means 20A, 20B, 20C, 20D, in use arranged to negotiate a path around or through the obstacle, whereby the sub-duct 12 is inserted into the duct 1 over the jammed cable 4 (e.g., Figs. 1-6, p. 3, lines 10-14, 19-20, p. 4, lines 3-28, p. 7, lines 7-24).

Claim 20 relates to a method of removing from a duct 1 a cable 4 which is jammed within the duct 1 by an obstruction, comprising inserting a sub-ducting apparatus 10 into the duct 1 over the jammed cable 4, the sub-ducting apparatus 10 comprising a sub-duct 12 and a remotely operable path-finding element comprising easing means and/or cutting means 20A, 20B, 20C, 20D, and remotely operating the path-finding element to negotiate a path around or through the obstacle, whereby the sub-duct 12 is

inserted into the duct 1 over the jammed cable 4 (e.g., Figs. 1-6, p. 3, lines 10-14, 19-20, p. 4, lines 3-28, p. 7, lines 7-24).

Dependent **claim 17** relates to an apparatus 10 for removing from a duct 1 a cable 4 which is jammed within the duct 1 by obstruction, in which the sub-duct 12 is inserted into the duct 1 so that it sleeves over a cable 4 within the duct 1 for subsequent removal of the cable 4 from the duct 1 (e.g., Figs. 1-6, p. 3, lines 10-14, 19-20, p. 4, lines 3-28, p. 7, lines 7-24).

Dependent **claim 18** relates to a method of removing from a duct 1 a cable 4 which is jammed within the duct 1 by an obstruction, in which the advancement of the sub-duct 12 so that it sleeves over a cable 4 within the duct 1 for subsequent removal of the cable 4 from the duct 1 (e.g., Figs. 1-6, p. 3, lines 10-14, 19-20, p. 4, lines 3-28, p. 7, lines 7-24).

(VI) GROUND OF REJECTION TO BE REVIEWED ON APPEAL

(i) Whether claims 19 and 20 are unpatentable under 35 U.S.C. §103(a) over Miyazaki et al. (US 5,108,228) in view of Griffioen et al. (US 5,639,183).

(ii) Whether claims 2-5, 7, 14 and 17-18 are unpatentable under 35 U.S.C. §103(a) over Miyazaki et al. (US 5,108,228) in view of Griffioen et al. (US 5,639,183).

(VII) ARGUMENT

(i) Claims 19 and 20 are patentable under 35 U.S.C. §103(a) over Miyazaki et al. (US 5,108,228) in view of Griffioen et al. (US 5,639,183).

In one example embodiment of the invention of claims 19 and 20, a cable 4 within a duct 1 (see, for example, Fig. 1(a) in the instant specification), which is tangled within other cables 2 inside the duct, is removed from the duct by using an elongated sleeve-shaped sub-duct 12, which is sleeved over and along the cable 4. The sub-duct 12 contains an appropriate head 20, see, for example, 20A in Figs. 3A and 3B, 20B in Figs. 4A and 4B, 20C in Fig. 5 and 20D in Figs. 6A and 6B. The head 20 is used remotely to negotiate the obstructions it encounters inside the duct (e.g., p. 1, lines 18-26). The head may be used to gently force the cables 2 away from the cable 4, by expansion of the head (e.g., Figs. 3A, 3B, p. 4, lines 18-28), or gently force the cables 2 away from the cable 4 in addition to chiseling through small gaps between obstructing cables (e.g., Figs. 4A, 4B, p. 5, lines 1-21), or advance through the duct by cutting through obstructions using either a chisel cutter (e.g., Fig. 5, p. 5, line 22 to p. 6, line 2) or a rotational cutter 60 (e.g., Figs. 6A, 6b, p. 6, line 3 to p. 7, line 6).

The Examiner identified the rigid plastic tube 1 in Fig. 1 of Miyazaki as the claimed sub-duct, and the front plug 2 (along with part of pipe 1 near plug 2) fitted to the front end of the tube 1, as the claimed remotely operated path-finding element, arranged to facilitate insertion of the sub-duct into a duct (c), see p. 2 of the Final Office Action of May 26, 2010.

The Examiner acknowledged that “Miyazaki is silent about the sub-duct and path-finding element sleeving over a cable”, and turned to Griffioen for the missing limitation.

In Griffioen, the Examiner identified the cable-duct 21 (see Figs. 3 and 4) as the claimed sub-duct that is sleeved over a cable 22. Therefore, the Examiner concluded that it would have been obvious to one of ordinary skill in the art to “modify Miyazaki to have the sub-duct and path finding element sleeve over a cable as taught by Griffioen in order to be able to line a pipe having existing cables running therethrough”, see p. 3 of the Final Office Action of May 26, 2010.

However, plug 2 fitted at the front end of pipe 1 in Miyazaki is not a “path-finding element...in use arranged to negotiate a path around or through the obstacle”, as required by claims 19 and 20. The rigid tube 1 in Miyazaki might be considered to be an equivalent of the sub-duct to be inserted into the pipe (c). As it is clearly shown in the drawings, the plug 2 has a rounded end including bores 2a. Its purpose, when fitted to the end of tube 1, is to enable steam entering the tube 1 to be discharged via the bores of the plug after the liner has been installed in the tube (see col. 5, lines 45-55 in Miyazaki).

The Miyazaki plug is thus not a “path-finding element” since it is not “arranged to negotiate a path around or through the obstacle [in the duct] whereby the sub-duct is inserted into the duct over the jammed cable” as required by claim 19 (and similarly for claim 20). It is the functional element 20 of the present application which is arranged to create a path through a crowded duct (see 20A, 20B, 20C, 20D in the drawings), to enable the insertion of the sub-duct over the jammed cable. There is simply no obstruction in the pipe (c) of Miyazaki. Miyazaki’s tube 1 thus does not need the plug 2 to clear a way for it. In any event, the tube, being rigid (see Miyazaki col. 4, line 66), is capable of finding its own way into the pipe: plug 2 does nothing for tube (c) in this regard. Miyazaki’s invention, which essentially is concerned with the problem of lining

the interior surface of a pipe having one open end, e.g., branch pipe portion (c) in Fig. 1, does not include easing and/or cutting means, as required by claims 19 and 20.

Moreover, the tube 1 in Miyazaki is physically incapable of serving as a sleeve inserted over a cable due to the presence of the plug, which is essential to the operation of the tube. In contrast, in the invention of claims 19 and 20, the claimed path-finding element 20 is arranged so that it is inserted over the jammed cable, while at the same time it functions, i.e., removing the obstructing cables, chiselling or cutting through obstacles, as an easing and/or cutting means.

With respect to the “path-finding element comprising easing means and/or cutting means”, the rounded end of Miyazaki's plug 2 (the alleged “path-finding element”) certainly prevents the plug 2 from cutting anything, such as an obstruction. Miyazaki's plug 2 thus fails to comprise a cutting means.

With respect to the “path-finding element comprising easing means and/or cutting means”, Miyazaki's plug 2 (again, the alleged “path-finding element”) also does not comprise an easing means. The specification (page 1, lines 20-21) states, for example, “An advantage of using a path-finding element is that jammed cables can be eased and separated away from other cables or from the duct without damaging the other cables or the duct itself (emphasis added).” The specification (page 7, lines 17 *et seq.* and page 7, lines 29 *et seq.*) further states, by way of example, “Once the obstructing cable 2 has been eased or unjammed, or the cable 4 has been freed from the duct 1, and the sub-duct 12 reaches the end of the redundant cable 4, the cable 4 is pulled out (emphasis added)” and “the path-finding heads 20A and 20B of the present sub-ducting apparatus can be used to ease cables out of the way in a crowded duct (emphasis added).” Clearly,

Miyazaki's plug 2 does not perform any such "easing". Instead, Miyazaki's plug 2 merely enables discharge of steam.

A person of ordinary skill in the art would therefore not find it obvious to "have the sub-duct and path finding element sleeve over a cable as taught by Griffioen in order to be able to line a pipe having existing cables running therethrough". The sub-duct 1 of Miyazaki has a closed front end plug 2 which is not possible to be inserted over any cable. Bores 2a are small diameter openings used only to let steam out of the sub-duct 1.

Miyazaki is only concerned with lining the interior wall of a branch pipe portion of an underground main pipe with a rigid plastics tube through one end of the branch pipe portion from the surface of the ground (see col. 1, lines 52-56). Miyazaki does not teach or suggest any obstructions such as cables within the branch pipe portion (c), let alone any tangled cables within branch pipe portion (c) that need to be removed.

Moreover, Griffioen also lacks the teaching of alleviating the problem of tangled cables in a duct. Griffioen merely teaches a method of installing a tubular duct around a cable buried in the ground, see col. 1, lines 6-8. Hence, one of ordinary skill in the art would not have looked into Griffioen for using a sub-duct inserted into the duct over a tangled cable to negotiate a path around or through an obstacle inside the duct.

For at least the above reasons, independent claim 19 and 20 are allowable.

(ii) Claims 2-5, 7, 14 and 17-18 are patentable under 35 U.S.C. §103(a) over Miyazaki et al. (US 5,108,228) in view of Griffioen et al. (US 5,639,183).

Claims 2-5, 7, 14 and 17-18 are dependent on claim 19, or 20, and are in condition for allowance at least because the claim from which they depend (claim 19 or 20) is in condition for allowance.

Dependent claims 17 and 18

Claim 17 (similarly for claim 18) requires “the sub-duct is inserted into the duct so that it sleeves over a cable within the duct for subsequent removal of the cable from the duct”.

Thus, for example, once the obstructing cables have been eased, the cable, over which the sub-duct inserted into the duct is sleeved, is pulled out (see p. 7, lines 17-19 of the instant specification).

The Examiner stated that Griffioen teaches the removal of the cable. Griffioen does teach that once the cable duct has been installed around the cable in the ground, the cable may optionally be removed from the duct by pulling (col. 7, lines 60-63). However, it is noted that Miyazaki (which was cited for the teaching of a sub-duct with a remotely operable path-finding element) is completely silent as to handling cables within a duct, e.g., the branch pipe portion (c), let alone removing any cables therewithin. Hence, one of ordinary skill in the art would not have used Miyazaki’s invention in order to pull any (jammed) cables from the ground.

CONCLUSION

In conclusion, it is believed that the application is in clear condition for allowance; therefore, early reversal of the Final Rejection and passage of the subject application to issue are earnestly solicited.

Respectfully submitted,

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(VIII) CLAIMS APPENDIX

2. An apparatus as claimed in claim 19 in which the sub-duct is an elongate sleeve.
3. An apparatus as claimed in claim 19 wherein the path-finding element is a path-finding head.
4. An apparatus as claimed in claim 3 wherein the head is detachable.
5. An apparatus as claimed in claim 3 in which the head is outwardly deformable.
7. An apparatus as claimed in claim 5 in which the head is outwardly deformable at the front end.
14. An apparatus for advancing a sub-duct into a main duct comprising apparatus as claimed in claim 19 and means for advancing it.
17. An apparatus according to claim 19 in which the sub-duct is inserted into the duct so that it sleeves over a cable within the duct for subsequent removal of the cable from the duct.
18. A method according to claim 20 in which the advancement of the sub-duct so that it sleeves over a cable within the duct for subsequent removal of the cable from the duct.

19. A sub-ducting apparatus for removing from a duct a cable which is jammed within the duct by an obstruction, comprising a sub-duct and a remotely operable path-finding element comprising easing means and/or cutting means, in use arranged to negotiate a path around or through the obstacle, whereby the sub-duct is inserted into the duct over the jammed cable.

20. A method of removing from a duct a cable which is jammed within the duct by an obstruction, comprising inserting a sub-ducting apparatus into the duct over the jammed cable, the sub-ducting apparatus comprising a sub-duct and a remotely operable path-finding element comprising easing means and/or cutting means, and remotely operating the path-finding element to negotiate a path around or through the obstacle, whereby the sub-duct is inserted into the duct over the jammed cable.

(IX) EVIDENCE APPENDIX

None.

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(X) **RELATED PROCEEDINGS APPENDIX**

None.